

**WHAT IS CLAIMED IS:**

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1        1. A method for treating an addiction disorder  
2        in a patient, said method comprising:  
3              administering to the patient a first  $\alpha_3\beta_4$   
4        nicotinic receptor antagonist; and  
5              administering to the patient a second  $\alpha_3\beta_4$   
6        nicotinic receptor antagonist; wherein the second  $\alpha_3\beta_4$   
7        nicotinic receptor antagonist is different than the first  
8         $\alpha_3\beta_4$  nicotinic receptor antagonist and wherein the first  
9         $\alpha_3\beta_4$  nicotinic receptor antagonist and the second  $\alpha_3\beta_4$   
10      nicotinic receptor antagonist are administered  
11      simultaneously or non-simultaneously.

1        2. A method according to claim 1, wherein the  
2        addiction disorder is nicotine addiction.

1        3. A method according to claim 1, wherein the  
2        addiction disorder is opioid addiction.

1        4. A method according to claim 1, wherein the  
2        addiction disorder is heroin addiction.

1        5. A method according to claim 1, wherein the  
2        addiction disorder is amphetamine addiction.

1        6. A method according to claim 1, wherein the  
2        addiction disorder is cocaine addiction.

1        7. A method according to claim 1, wherein the  
2        addiction disorder is alcohol addiction.

1               8. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist and the second  
3  $\alpha_3\beta_4$  nicotinic receptor antagonist are administered  
4 simultaneously.

1               9. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist and the second  
3  $\alpha_3\beta_4$  nicotinic receptor antagonist are administered  
4 simultaneously by administering a composition comprising  
5 the first  $\alpha_3\beta_4$  nicotinic receptor antagonist and the  
6 second  $\alpha_3\beta_4$  nicotinic receptor antagonist.

1               10. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist and the second  
3  $\alpha_3\beta_4$  nicotinic receptor antagonist are administered  
4 sequentially, in either order, within 4 hours of one  
5 another.

1               11. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is administered  
3 in an amount of from about 0.01 to about 10 mg/kg of the  
4 patient's body weight per day and wherein the second  $\alpha_3\beta_4$   
5 nicotinic receptor antagonist is administered in an  
6 amount of from about 0.01 to about 10 mg/kg of the  
7 patient's body weight per day.

1               12. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is administered  
3 in an amount of from about 0.1 to about 5 mg/kg of the  
4 patient's body weight per day and wherein the second  $\alpha_3\beta_4$   
5 nicotinic receptor antagonist is administered in an  
6 amount of from about 0.1 to about 5 mg/kg of the  
7 patient's body weight per day.

1               13. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is selected from  
3 the group consisting of mecamylamine, 18-  
4 methoxycoronaridine, bupropion, dextromethorphan,  
5 dextrorphan, and pharmaceutically acceptable salts and  
6 solvates thereof.

1               14. A method according to claim 1, wherein the  
2 second  $\alpha_3\beta_4$  nicotinic receptor antagonist is selected from  
3 the group consisting of mecamylamine, 18-  
4 methoxycoronaridine, bupropion, dextromethorphan,  
5 dextrorphan, and pharmaceutically acceptable salts and  
6 solvates thereof.

1               15. A method according to claim 1, wherein  
2 each of the first and second  $\alpha_3\beta_4$  nicotinic receptor  
3 antagonists is independently selected from the group  
4 consisting of mecamylamine, 18-methoxycoronaridine,  
5 bupropion, dextromethorphan, dextrorphan, and  
6 pharmaceutically acceptable salts and solvates thereof.

1               16. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is mecamylamine.

1               17. A method according to claim 1, wherein the  
2 second  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 dextromethorphan.

1               18. A method according to claim 1, wherein the  
2 second  $\alpha_3\beta_4$  nicotinic receptor antagonist is dextrorphan.

1               19. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is mecamylamine

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3 and wherein the second  $\alpha_3\beta_4$  nicotinic receptor antagonist  
4 is dextromethorphan.

1               20. A method according to claim 1, wherein the  
2 first  $\alpha_3\beta_4$  nicotinic receptor antagonist is mecamylamine  
3 and wherein the second  $\alpha_3\beta_4$  nicotinic receptor antagonist  
4 is dextrorphan.

1               21. A composition comprising:  
2                a first  $\alpha_3\beta_4$  nicotinic receptor antagonist; and  
3                a second  $\alpha_3\beta_4$  nicotinic receptor antagonist;  
4                wherein the second  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
5                different than the first  $\alpha_3\beta_4$  nicotinic receptor  
6                antagonist.

1               22. A composition according to claim 21,  
2                wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist and  
3                said second  $\alpha_3\beta_4$  nicotinic receptor antagonist are present  
4                in a weight ratio of from about 10:1 to about 1:10.

1               23. A composition according to claim 21,  
2                wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist and  
3                said second  $\alpha_3\beta_4$  nicotinic receptor antagonist are present  
4                in a weight ratio of from about 5:1 to about 1:5.

1               24. A composition according to claim 21,  
2                wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3                selected from the group consisting of mecamylamine, 18-  
4                methoxycoronaridine, bupropion, dextromethorphan,  
5                dextrorphan, and pharmaceutically acceptable salts and  
6                solvates thereof.

1               25. A composition according to claim 21,  
2                wherein said second  $\alpha_3\beta_4$  nicotinic receptor antagonist is

3 selected from the group consisting of mecamylamine, 18-  
4 methoxycoronaridine, bupropion, dextromethorphan,  
5 dextrorphan, and pharmaceutically acceptable salts and  
6 solvates thereof.

1               26. A composition according to claim 21,  
2 wherein each of said first and said second  $\alpha_3\beta_4$  nicotinic  
3 receptor antagonists is independently selected from the  
4 group consisting of mecamylamine, 18-methoxycoronaridine,  
5 bupropion, dextromethorphan, dextrorphan, and  
6 pharmaceutically acceptable salts and solvates thereof.

1               27. A composition according to claim 21,  
2 wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 mecamylamine.

1               28. A composition according to claim 21,  
2 wherein said second  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 dextromethorphan.

1               29. A composition according to claim 21,  
2 wherein said second  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 dextrorphan.

1               30. A composition according to claim 21,  
2 wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 mecamylamine and wherein said second  $\alpha_3\beta_4$  nicotinic  
4 receptor antagonist is dextromethorphan.

1               31. A composition according to claim 21,  
2 wherein said first  $\alpha_3\beta_4$  nicotinic receptor antagonist is  
3 mecamylamine and wherein said second  $\alpha_3\beta_4$  nicotinic  
4 receptor antagonist is dextrorphan.

1               32. A composition according to claim 21,  
2 wherein said composition is in the form of a tablet,  
3 capsule, granular dispersible powder, suspension, syrup,  
4 or elixir.

1               33. A composition according to claim 21,  
2 wherein said composition is in the form of a tablet or  
3 capsule and wherein said composition further comprises an  
4 inert diluent, a granulating agent, a disintegrating  
5 agent, a lubricating agent, or combinations thereof.

*Sub A3*

1               34. A composition comprising:  
2                a first compound selected from the group  
3 consisting of mecamylamine, 18-methoxycoronaridine,  
4 bupropion, dextromethorphan, dextrorphan, and  
5 pharmaceutically acceptable salts and solvates thereof;  
6 and

7                a second  $\alpha_3\beta_4$  compound selected from the group  
8 consisting of mecamylamine, 18-methoxycoronaridine,  
9 bupropion, dextromethorphan, dextrorphan, and  
10 pharmaceutically acceptable salts and solvates thereof;  
11 wherein the second compound is different than the first  
12 compound.

1               35. A method of evaluating a compound for its  
2 effectiveness in treating addiction disorders, said  
3 method comprising:  
4                assessing the compound's ability to bind to  $\alpha_3\beta_4$   
5 nicotinic receptors.

1               36. A method according to claim 35, wherein  
2 said assessing comprises:  
3                providing an  $\alpha_3\beta_4$  nicotinic receptor; and

4                   contacting the test compound with the  $\alpha_3\beta_4$   
5   nicotinic receptor; and  
6                   determining the amount of test compound which  
7   binds to the  $\alpha_3\beta_4$  nicotinic receptor.

1                   37. A method for treating an addiction  
2   disorder in a patient, said method comprising:  
3                   administering to the patient an  $\alpha_3\beta_4$  nicotinic  
4   receptor antagonist under conditions effective to treat  
5   the patient's addiction disorder.

1                   38. A method according to claim 37, wherein  
2   the  $\alpha_3\beta_4$  nicotinic receptor antagonist is not  
3   mecamylamine; is not 18-methoxycoronaridine; is not  
4   bupropion; is not dextromethorphan; is not dextrorphan,  
5   is not ibogaine; and is not a pharmaceutically acceptable  
6   salt or solvate of mecamylamine, 18-methoxycoronaridine,  
7   bupropion, dextromethorphan, dextrorphan, or ibogaine.

1                   39. A method according to claim 37, wherein  
2   the  $\alpha_3\beta_4$  nicotinic receptor antagonist is selective for  
3    $\alpha_3\beta_4$  nicotinic receptors.

1                   40. A method according to claim 37, wherein  
2   the  $\alpha_3\beta_4$  nicotinic receptor antagonist is specific for  $\alpha_3\beta_4$   
3   nicotinic receptors.

1                   41. A method according to claim 37, wherein  
2   the  $\alpha_3\beta_4$  nicotinic receptor antagonist is more potent than  
3   18-methoxycoronaridine at  $\alpha_3\beta_4$  nicotinic receptors.

*AS/AS*